

**REMARKS**

Reconsideration of this application is respectfully requested. Petition is hereby made for a three-month extension of time to respond to the outstanding Office Action of October 20, 2006.

Claims 1-16 are pending in the application. Upon entry of this Amendment, claims 2-16 will be amended to better conform the recited dependencies of such claims to U.S. practice.

The Examiner is thanked for indicating, in the outstanding Office Action of October 20, 2006, that that objected to claims 4-5 and 12-16 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Claims 4-5 and 12-16 have not been so amended at this time because Applicant believes that independent claim 1 from which such claims depend, either directly or indirectly, is allowable over the Tae-Sig reference cited against such claims in the outstanding Office Action. Nevertheless, no further comments regarding these claims will be made hereafter.

In the outstanding Office Action, the Examiner rejected claims 1-3 and 6-11 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,432,416 to Tae-Sig alone. The Examiner's rejection is respectfully traversed.

For a claimed invention to be obvious over a combination of prior art references, so as to be unpatentable under §103(a), the Federal Circuit has held that there must be some suggestion, motivation or teaching in the prior art that would have led one of ordinary skill in the art to combine the references to produce the claimed invention. *E.g., Ashland Oil, Inc. v. Delta Resins & Refracs.*, 776 F.2d 281, 293 (Fed. Cir. 1985). In this

regard, the Federal Circuit has identified three possible sources for a motivation to combine references, *i.e.*, (1) the nature of the problem to be solved, (2) the teachings of the prior art, and (3) the knowledge of persons of ordinary skill in the art. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998).

In rejecting claims 1-3 and 6-11 under §103(a) as being unpatentable over Tae-Sig alone, the Examiner must rely on "concrete factual evidence" to support his rejection of the claimed invention. *See In re Zurko*, 258 Fed.3d 1379, 1385-86 (Fed. Cir. 2001). The *Zurko* decision requires an Examiner to provide concrete factual evidence to support a determination that claims are not patentable because they are obviousness over cited prior art.

With respect to core factual findings in a determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.

*Zurko*, 258 F.3d at 1385-86. The same is true with respect to the Examiner's rejection of claims 1-3 and 6-11 under §103(a) as being unpatentable over Tae-Sig alone.

Independent claim 1 of the present application describes a drive unit comprising a rolling means intended to be in frictional engagement with a surface over which the drive unit is intended to move. The drive unit further comprises a first driving means that is arranged with the rolling means on a rotatable support means that is rotatable about a center axis, and a second driving means that rotates the support means about the center axis, allowing the support means and the rolling means to rotate with respect to the drive

unit. The first driving means rotates the rolling means about a rolling axis. The first driving means and a second driving means co-operatively operate to provide both propulsion and steering of the drive unit, while eliminating slippage between the surface and the rolling means. This is aided by the rolling means being displaced a predetermined distance from the center axis.

Because the rolling means is displaced a predetermined distance from the center axis of the support means, as the second driving means rotates the support means about the center axis, both the support means and the rolling means rotate with respect to the drive unit, even when the drive unit is stationary. The rotating rolling means allows the inertia of the stationary drive unit to be overcome and the drive unit to move without excess sliding of the rolling means relative to the underlying surface, thereby avoiding the possibility of damage to the surface from such sliding. *See, e.g., Application, p. 6, lns. 10-19.*

One of the most important aspects of the claimed invention of the present application is that the rolling means is displaced a predetermined distance from the center axis of the rotating support means. This feature of the claimed invention is neither taught nor suggested by the cited Tae-Sig reference, which discloses a drive unit where a drive wheel 11 is rotated about its center. The “wheel center” rotational operation of Tae-Sig’s apparatus is depicted, for example, in Figures 8A through 9D of Tae-Sig.

The Examiner noted the drive wheel offset deficiency in the teachings of Tae-Sig in the outstanding Office Action; however, the Examiner argued that it would have been obvious for one of ordinary skill in the art “to offset the rolling means from the central axis by placing the first driving means’ center of gravity coincidental with the central

axis”, arguing further that one of ordinary skill in the art would have been “motivated to place the first driving means along the central axis to allow the second driving means to smoothly rotate the platform by placing the heaviest component at the center of rotation.”

10/20/06 Office Action, pp. 2-3. In making this argument, the Examiner did not specifically argue that the motivation to modify the robot driving apparatus of Tae-Sig would be based on the nature of the problem to be solved, the teachings of the prior art, or the knowledge of persons of ordinary skill in the art.

Nevertheless, the motivation argued by the Examiner, *i.e.*, to allow the second driving means to smoothly rotate the platform by placing the heaviest component at the center of rotation, is not the reason why the rolling means in the claimed invention is displaced a predetermined distance from the center axis of the rotating support means. Rather, the offset rolling means of the claimed invention is not to rotate the drive unit smoothly, but, rather, to allow the first driving means and the rolling means to be rotated while the drive unit is stationary so that the drive unit can be moved without excess sliding of the rolling means relative to the underlying surface. This feature is what allows a vehicle built with two or more of the claimed drive unit to move accurately and smoothly, without friction between the drive unit and the floor having an effect on the motion of the vehicle or the condition of the floor.

The Examiner also argued that Tae-Sig’s apparatus “eliminates slippage between said rolling means and said surface.” 10/20/06 Office Action, p. 2. This is clearly not the case. If a steering mechanism rotates while the apparatus on which the steering mechanism is mounted remains still, there will be friction between the wheel and the underlying surface as the wheel rotates in response to the rotation of the steering

mechanism. This is also the case whenever the steering speed is much greater than the driving speed. The design of the claimed invention eliminates this problem.

In sum, it is clear that claim 1 is not obvious over the teachings of Tae-Sig. And, for the reasons discussed above as to why independent claim 1 is not obvious over Tae-Sig, , it is clear that dependent claims 2, 3 and 6-11, which depend from independent claim 1, are not obvious over such reference.

Although the Examiner, in the outstanding Office Action, identified a number of U.S. patents considered by the Examiner to be pertinent to Applicant's disclosure, because the Examiner did not apply any of these patents against the claims of the present application, it is believed that no comment regarding these patents is necessary at this time.

In view of the foregoing, it is believed that all of the claims pending in the application, *i.e.*, claims 1-16, are now in condition for allowance, which action is earnestly solicited. If any issues remain in this application, the Examiner is urged to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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